

1996–1998 Polish Visual Meteor Database

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Abstract

The summary of 1996-1998 visual observations collected by the Polish *Comets and Meteors Workshop* is presented. In total, during 2328.12 effective observing hours 14085 meteors were seen and plotted onto gnomonic star maps by 41 observers. The date, time, magnitude, angular velocity and equatorial coordinates for each observed event are given. The full 1996–1998 *Polish Visual Meteor Database (PVMDB)* is accessible via INTERNET

1 Introduction

Since 1994 the Polish *Comets and Meteors Workshop (CMW)* has been cooperating with the *International Meteor Organization (IMO)*. During the first two years we made mostly visual observations of major showers without plotting the meteors onto the gnomonic star maps. Over time the experience of our observers grew and in 1996 we decided to start visual observations with plotting.

Every year a complete set of our observation reports was sent to the *IMO* and our results were included in the *IMO Visual Meteor Database (VMDB)* (see for example Arlt 2000). However we would like to point out that the *VMDB* contains only the information about hourly rates and magnitude distributions of the observed meteors. Thus, an error in classification of a meteor made by the observer while filling out the report form is included also in the *VMDB*.

Additionally the *VMDB* contains the data only about meteor showers from the *IMO Working List of the Meteor Showers*. Thus it is impossible to get the information about other small or poorly known streams from the *VMDB*.

The solution to the problem is to publish a full database containing all quantities describing a meteor event including its equatorial coordinates and angular velocity. Such a database can be searched for the presence of any shower in any moment of time.

The database of Polish telescopic observations made in the years 1996-1998 was already published by Olech & Jurek (2000). Following this approach we decided to publish in the same form our visual results from the years 1996-1998. Table 1 summarizes our visual work in this period of time. In a total 14085 meteors were seen during 2328.12 effective observing hours by 41 observers.

Table 2 shows a list of the *CMW* observers with their effective observing time and number of meteors plotted in each of years 1996-1998.

2 Coordinate files

The files `coor96.txt`, `coor97.txt` and `coor98.txt` contain data for each observed meteor such as the date of appearance, serial number of meteor, its magnitude, its angular velocity (in scale from *A* to *F*), time of appearance, equatorial coordinates of beginning and end, IMO code of the observer and three letter code. Below we show a small sample of such a file:

```
1998 01 01/02    1    4.5 C 00:47 219.20  76.42 237.00  72.38 SKOAN ABZ
1998 01 01/02    2    2.0 B 00:47 321.66  66.76 005.76  59.44 SKOAN ABZ
1998 01 01/02    3    1.5 C 00:47 216.55  52.21 236.21  56.24 SKOAN ABZ
1998 01 01/02    4    1.5 C 00:47 257.92  50.32 266.80  48.49 SKOAN ABZ
1998 01 01/02    5    4.0 D 00:47 211.86  50.55 206.85  51.73 SKOAN ABZ
1998 01 01/02    6   -2.0 B 00:47 097.50  87.00 312.50  81.00 SKOAN ABZ
1998 01 01/02    7    2.0 B 01:37 206.19  78.68 251.99  65.72 SKOAN ACA
1998 01 01/02    8    4.0 C 01:37 181.14  73.42 171.16  74.95 SKOAN ACA
1998 01 01/02   10    4.0 D 01:37 273.52  52.78 269.18  49.60 SKOAN ACA
1998 01 02/03    1    4.5 D 17:01 028.60  43.07 017.24  43.14 OLEAR ACB
```

and in Table 3 we give byte-by-byte description of these files.

Three letter code shown in the last column of `coor9?.txt` file is used for connecting each meteor with the information about the observation stored in the `head9?.txt` file.

The time of appearance of a meteor, when it is not given exactly in the report form, is assumed as the middle time of each observing period.

All equatorial coordinates were inputed using the COOREADER software (Olech & Samujłło 1999).

3 Header files

The files `head96.txt`, `head97.txt`, `head98.txt` contain information about the each observing run such as: three letter code allowing to connect each observation with data on meteors presented in coordinate files, IMO code of observer, longitude and latitude of place of observation, date, UT time of begin and end of observation, solar longitude (J2000) of middle time of each run, equatorial coordinates of observed field, effective time of observation, cloud correction factor *F*, stellar limiting magnitude estimated by the naked eye and the IMO code of the place of observation.

Below we show a small sample of such a file:

```
ABZ SKOAN  21.0 E 50.0 N 02 01 98 0016 0118 281.444 210  75 1.00 1.00 5.80 34029
ACA SKOAN  21.0 E 50.0 N 02 01 98 0118 0156 281.479 210  75 0.60 1.00 5.72 34029
ACB OLEAR  23.5 E 51.1 N 02 01 98 1630 1732 282.133 000  70 1.00 1.00 5.42 34012
ACC OLEAR  23.5 E 51.1 N 02 01 98 2026 2134 282.302 000  70 1.00 1.00 5.70 34012
ACD OLEAR  23.5 E 51.1 N 03 01 98 0005 0108 282.456 000  70 1.00 1.00 6.18 34012
ACE OLEAR  23.5 E 51.1 N 03 01 98 0110 0214 282.502 000  70 1.00 1.00 6.13 34012
ACF OLEAR  23.5 E 51.1 N 03 01 98 0214 0305 282.543 000  70 0.75 1.00 6.15 34012
ACG SZAKO  23.2 E 50.5 N 02 01 98 2003 2124 282.291 181  53 1.30 1.00 6.40 34040
```

Table 4 gives a byte-by-byte description of the header files.

4 Summary

We have presented the summary of the 1996-1998 visual observations made by the Polish *Comets and Meteors Workshop*. In total 14085 meteors were observed during 2328.12 effective observing hours collected by 41 observers. The date, time, magnitude, angular velocity and equatorial coordinates for each observed event is given. The full 1996–1998 *Polish Visual Meteor Database (PVMDB)* is accessible via INTERNET at the following URL: <http://www.astro.uw.edu.pl/~olech/VIS/>.

The 1999-2000 data are still under review but they will be available to the astronomical community as soon as possible.

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References

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Table 1: Polish Visual Meteor Database (PVMDB) grand totals for 1996-1998

Year	Observers	$T_{\text{eff}}(^h)$	Meteors
1996	18	247.86	1508
1997	25	849.41	5269
1998	31	1230.85	7308
Total	41	2328.12	14085

Table 2: Total effective observing time in hours (T_{eff}) and number of meteors plotted (N) per observer in years 1996-1998.

Observer	IMO Code	1996		1997		1998		Total	
		T_{eff}	N	T_{eff}	N	T_{eff}	N	T_{eff}	N
Jarosław Dygos	DYGJA	—	—	44.99	181	308.98	1324	353.97	1505
Tomasz Fajfer	FAJTO	84.50	382	185.50	862	22.50	115	292.50	1359
Konrad Szaruga	SZAKO	26.14	144	108.15	659	88.35	437	222.64	1240
Krzysztof Socha	SOCKR	17.31	102	87.47	616	105.11	769	209.89	1487
Maciej Kwinta	KWIMA	4.67	19	71.24	438	68.08	540	143.99	997
Gracjan Maciejewski	MACGR	—	—	49.17	219	81.17	394	130.34	613
Marcin Konopka	KONMA	—	—	36.39	349	81.59	450	117.98	799
Arkadiusz Olech	OLEAR	20.92	248	42.88	540	49.75	463	113.55	1251
Andrzej Skoczewski	SKOAN	—	—	46.68	276	56.84	380	103.52	656
Paweł Trybus	TRYPA	—	—	2.17	8	90.55	587	92.72	595
Wojciech Jonderko	JONWO	2.20	5	22.17	137	39.12	155	63.49	297
Marcin Gajos	GAJMR	6.29	37	35.17	248	17.63	104	59.09	389
Albert Krzyśków	KRZAL	—	—	11.83	76	43.49	282	55.32	358
Aleksander Trofimowicz	TROAL	—	—	—	—	38.47	229	38.47	229
Krzysztof Wtorek	WTOKR	23.00	140	11.99	78	—	—	34.99	218
Łukasz Rauowicz	RAULU	—	—	23.62	163	6.09	41	29.71	204
Michał Jurek	JURMC	8.52	43	14.66	93	6.00	53	29.18	189
Cezary Gałań	GALCE	—	—	—	—	28.85	204	28.85	204
Łukasz Pospieszny	POSLU	20.68	158	6.91	30	—	—	27.59	188
Luiza Wojciechowska	WOJLU	—	—	—	—	25.32	168	25.32	168
Mariusz Wiśniewski	WISMA	—	—	—	—	20.86	342	20.86	342
Maciej Reszelski	RESMA	7.86	89	8.77	99	—	—	16.63	188
Paweł Brewczak	BREPA	—	—	—	—	16.52	81	16.52	81
Łukasz Sanocki	SANLU	5.77	39	4.34	40	6.17	28	16.28	107
Tomasz Ramza	RAMTO	7.00	32	5.98	19	—	—	12.98	51
Artur Szaruga	SZAAR	—	—	10.17	37	2.12	8	12.29	45
Tomasz Dziubiński	DZITO	3.50	21	8.00	42	—	—	11.50	63
Krzysztof Kamiński	KAMKR	—	—	7.60	45	1.35	8	8.95	53
Jarosław Nocoń	NOCJA	—	—	—	—	6.53	21	6.53	21
Waldemar Drozdowski	DROWA	—	—	1.00	3	5.40	19	6.40	22
Rafał Kopacki	KOPRA	5.50	30	—	—	—	—	5.50	30
Krzysztof Mularczyk	MULKR	—	—	—	—	4.00	17	4.00	17
Mariola Czubaszek	CZUMA	—	—	—	—	2.80	40	2.80	40
Adam Pisarek	PISAD	—	—	—	—	2.71	8	2.71	8
Marek Piotrowski	PIOMA	—	—	2.56	11	—	—	2.56	11
Jacek Kluczewski	KLUJA	—	—	—	—	2.00	21	2.00	21
Sylwia Chelmoniak	CHESY	—	—	—	—	1.50	11	1.50	11
Krzysztof Gdula	GDUKR	1.50	4	—	—	—	—	1.50	4
Paweł Musiański	MUSPA	1.50	11	—	—	—	—	1.50	11
Sylwia Hołowacz	HOLSY	—	—	—	—	1.00	9	1.00	9
Robert Sołtys	SOLRO	1.00	4	—	—	—	—	1.00	4
Total	—	247.86	1508	849.41	5269	1230.85	7308	2328.12	14085

Table 3: Byte-by-byte description of `coor9?.txt` files

Bytes	Format	Units	Explanations
1-4	I4	-	Year
6-7	I2	-	Month
9-13	A5	-	Day/Day
15-17	I3	-	Number of meteor in report
19-21	F5.1	mag	magnitude of meteor
25	I1	-	Velocity in scale form A to F
27-31	A5	UT	Time
33-38	F6.2	°	RA of the beginning of meteor (J2000)
40-45	F6.2	°	Decl. of the beginning of meteor (J2000)
47-52	F6.2	°	RA of the end of meteor (J2000)
54-59	F6.2	°	Decl. of the end of meteor (J2000)
61-65	A5	-	IMO Code of observer
67-69	A3	-	Three letter code

Table 4: Byte-by-byte description of `head9?.txt` files

Bytes	Format	Units	Explanations
1-3	A3	-	Three letter code
5-9	A5	-	IMO Code of observer
11-15	F5.1	°	Longitude of place of observation
17	A1	-	Hemisphere designation
19-22	F4.1	°	Latitude of place of observation
24	A1	-	Hemisphere designation
26-27	I2	-	Day
29-30	I2	-	Month
32-33	I2	-	Year
35-38	I4	-	Time of beginning of observation (UT)
40-43	I4	-	Time of end of observation (UT)
45-51	F7.3	°	Solar longitude of middle time of observation (J2000)
53-55	I3	°	RA of center of field of view (J2000)
57-59	I3	°	Decl. of center of field of view (J2000)
61-64	F4.2	h	Effective time of observation
66-69	F4.2	-	Cloud correction factor F
71-74	F4.2	mag	Limiting magnitude estimated in field of view
76-80	I5	-	IMO code of the place of observation